

The Vascular World Is Coming Together In New York  
In November 2024



**Take 3**

*Not So: Many Failed EVARs are Best Repaired by Open Conversion!*



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**Disclosures**


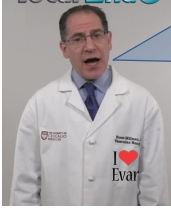
None for this talk

*I could not Find Any Industry Sponsor for Open Procedures!!*

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**Take 1**  
2022

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**"The Endo Creed"**  
I Can Stent, I Can Coil  
I Can Repair Any Hole

With my sheath and my wire  
I can extinguish any Fire

If my EVARs Break or Fall  
A little glue will fix it ALL !

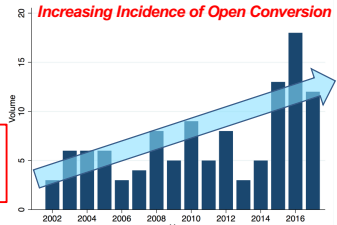
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Increasing use of open conversion for late complications after endovascular aortic aneurysm repair

Abhisekh Mohapatra, MD, Darve Robinson, BA, Othman Malak, MD, Michael C. Madigan, MD, Efthimios D. Avgerinos, MD, Rabih A. Chaer, MD, Michael J. Singh, MD, and Michel S. Makaroun, MD.

**✓ 102 OPEN CONVERSIONS**

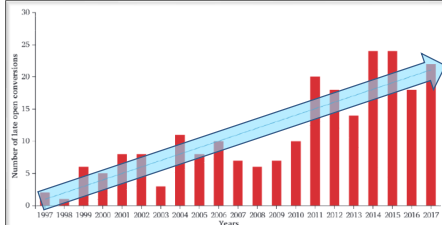
Average of 2 previous Failed Attempts at Endovascular Salvage



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Twenty-two Year Multicentre Experience of Late Open Conversions after Endovascular Abdominal Aneurysm Repair

Paolo Patel<sup>1,2,3,4</sup>, Mauro Gargiulo<sup>5</sup>, Roberto Silingardi<sup>6</sup>, Stefano Bonardi<sup>7</sup>, Raffaele Bellotta<sup>8</sup>, Stefano Benini<sup>9</sup>, Stefano Michiolianni<sup>10</sup>, Nicola Tassi<sup>11</sup>, Fausto Casali<sup>12</sup>, Annalisa Lavelli<sup>13</sup>, on behalf of the UKOPE Investigators



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### Current Role of Open Surgery In AAA Management

UPMC Jan 1, 2019 to September 30, 2019  
**Open Aortic Cases : 72 Patients**

Conversions after Failed EVAR	24 (33%)
Elective AAA Open Surgical Repair	22
Open Repair of Symptomatic or Ruptured AAA	13
Mesenteric bypass or thrombo-embolectomies	6
Excision of Infected aortic Grafts	3
Aorto-Bifemoral for Occlusive Disease	4

U of Florida J Vasc Surg 2021

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### Durability of Endovascular Rescue of Failed EVARs in Question

Aorta and Major Branches Eur J Vasc Endovasc Surg (2021) 62, 540–548

Prospective Multicentre Cohort Study of Fenestrated and Branched Endografts After Failed Endovascular Infraarenal Aortic Aneurysm Repair with Type Ia Endoleak

Aurélien Hostalrich <sup>1</sup>, Thomas Messard <sup>2</sup>, Raphaël Selier <sup>3</sup>, Paul Girardot <sup>4</sup>, Adrien Kalagi <sup>5</sup>, Eléonore Jean Baptiste <sup>6</sup>, Serguei Mallikow <sup>7</sup>, Thierry Reix <sup>8</sup>, Jean-Baptiste Ricco <sup>9</sup>, Xavier Chaufour <sup>10</sup>, for the Association Universitaire de Recherche en Chirurgie (AURC)

82 FEVAR and 3 BEVAR procedures for Type IA

- Failure of repair: 6%
- Mortality 5%
- SCI: 4.7%
- **RE\_RE Intervention @3 Years: 33%** ¼ Open Conversion

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**Repetitive Failure of Endovascular Rescue is more the rule than the exception Leading to More and More Reinterventions!**

Year 1: Type II Lumbar  
Year 2: Type I Distal  
Year 3: Type II IMA

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### MB. 78

- EVAR 2015, Endurant, Two Endo Reinterventions
- Type Ib treated by distal extension and coiling of right internal
- Type IA Treated by Proximal Extension, October 2021.
- Nov 7 2021: Rupture and collapse.

Open Repair: Partial Explant

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### WB. 61

- EVAR 2012, AFX at age of 52!
- Rupture October 2021. Suspected Type III
- Initial Endovascular Rx with Endurant inside AFX, (white arrows)
- Continued to bleed from Type III between components

Open Repair: Partial Explant

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### Which Failed EVAR needs Open Conversion?

- ✓ **Early** Conversions are related to judgment/technical errors and are rare
- ✓ **Late** Conversions are more common and mostly related to arterial degeneration and / or material fatigue
- ✓ Indications for Open Conversion:
  - Aortic Rupture
  - Graft Infection
  - Type I A or III
  - Graft Thrombosis
  - **More and more, even the most frequent failure mode after EVAR is requiring open intervention: Type II endoleaks with sac enlargement**

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**Mounting FRUSTRATION with endovascular Rx of Type II Endoleaks**

Type II endoleak is an enigmatic and unpredictable marker of worse outcome after endovascular aneurysm repair

Enrico Cieri, MD, PhD,<sup>1</sup> Paola De Rango, MD, PhD,<sup>2</sup> Giacomo Isernia, MD,<sup>3</sup> Gioele Simone, MD,<sup>4</sup> Andrea Ciucci, MD,<sup>5</sup> Gianbattista Parlani, MD,<sup>6</sup> Fabio Verzini, MD, PhD, FEBVS,<sup>7</sup> and Piergiorgio Cao, MD, FRCS,<sup>8</sup> Perugia and Rome, Italy

*"Type II endoleaks have more growth and lead to many (re)interventions that seem ineffective in stopping the expansion and eliminating the endoleaks compared to those left alone".*

1 Univ. Studi, 2024; 2024; 3 2024; 4 2024; 5 2024; 6 2024; 7 2024; 8 2024

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**Are Type II endoleaks are easy to Rx by endovascular means?**

**Assumption: Quick Easy Endovascular Repair TRANSARTERIAL Or TRANSLUMBAR**

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**Disappointing Endovascular Rx Outcomes for type II**

Effectiveness of coiling in the treatment of endoleaks after endovascular repair

Maureen K. Sheehan, MD,<sup>1</sup> Joel Barbano, MD,<sup>2</sup> Christopher N. Compton, MD,<sup>3</sup> Albert Zalko, MD,<sup>4</sup> Robert Eber, MD,<sup>5</sup> and Michael S. Makaroun, MD,<sup>6</sup> Pittsburgh, Pa

**When Indicated Treatment of enlarging sacs**

**Average of 2.5 to 4 attempts per patient**

Year	#	Indication	Success	Outcomes
2003-2004	18	Persistent	89%	44% no sac increase
Liewald	13	Post-embolization	80%	43% no endoleak
Baum	1	Translumbar	100%	28% no endoleak
Faries	16	Translumbar	75%	31% no endoleak
Sheehan	19	Persistent	79% Resolution	40% no sac increase

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**Disappointing Endovascular Rx Outcomes for type II**

One-year follow-up after active aortic aneurysm sac treatment with shape memory polymer devices during endovascular aneurysm repair

Andrew Holden, MBChB,<sup>1</sup> Andrew A. Hill, MBChB,<sup>2</sup> Manar Khoshroo, MBChB, PhD,<sup>3</sup> [J Vasc Med Biol 2024; 36\(1\): 100-108](#)

Five-year follow-up of randomized clinical trial for pre-emptive inferior mesenteric artery embolization during endovascular aneurysm repair

Yuniko Takeuchi, MD,<sup>1</sup> Noriyasu Morikage, MD,<sup>2</sup> Makoto Samura, MD,<sup>3</sup> Ryunosuke Sakamoto, MD,<sup>4</sup> [J Vasc Med Biol 2024; 36\(1\): 693-701](#)

ELECT: prospective, randomized trial comparing microvascular plug versus platinum-fibered microcoils for embolization of aneurysm sac side branches before endovascular aortic aneurysm repair

Manuel Konec,<sup>1</sup> Ib, Andrej Schmidt,<sup>2</sup> Daniela Branon,<sup>3</sup> Tim Wittig,<sup>4</sup> Dietrich Schenert,<sup>5</sup> and Sabine Steiner,<sup>6</sup> [J Vasc Med Biol 2024; 36\(1\): 709-716](#)

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**2018 SVS Guidelines recommendations**

We suggest open repair if endovascular intervention fails to treat a type II endoleak with ongoing aneurysm enlargement.

Level of recommendation	2 (Weak)
Quality of evidence	C (Low)

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**Graft Sparing and Preserving Procedures**

- ✓ Usually for Type II with suturing of lumbar, or difficult small Type I endoleaks with wrapping or reinforcing of neck or both
- ✓ Can be done with limited incision **and no clamping**.
- ✓ Lumbar can be difficult if high in neck. Excessive bleeding.

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**Take I**  
**2022**  
*"Many Failed EVARs are Best Repaired by Open Conversion!"*  
**Won by a landslide!**

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**Take II**  
**2023**

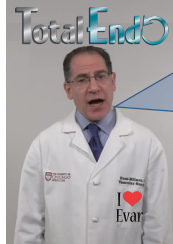
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**3 days earlier: Wed November 15<sup>th</sup> 10:21 AM !!**



*"I Try To treat type II endoleaks once or twice endo, If not successful I go to Open Ligament of Lumbar!"*

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**"The Sympathy Song"**  
*Last Year, I Left Broken Hearted Debated well but was outsmarted*  
*I speak the truth: I'm an honest guy What Mak just claimed is just a lie!*  
*Today I beg you; Even the score Vote for me ; Ignore his roar!*

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**Take II**  
**2023**  
*"The Vast Majority of Failed EVARs can be treated Endovascularly!"*  
**Ross Won the Vote!**

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**Take III**  
**2023**

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